

The Industrial Revolution - day 1

Entrance task: Think:
What is a revolution?
Today: **Intro to the**
Industrial Revolution -
Why England
Homework: Ch. 20-2



What is a revolution?

What are the ingredients of a revolution?

Does it take two to tango?

Are the results always good or bad?

Are there always lasting results?

The Industrial Revolution

- Began in mid-18th century (1750) in England
- England had the necessary ingredients for the growing industrial development
- Necessity is the mother of invention

Why England: Political Advantage

- Stable government
- Mercantilism
- Empire - resources & markets
- Enclosure Acts = Labor source
- Isolated from continental problems
- Common market - no trade barriers



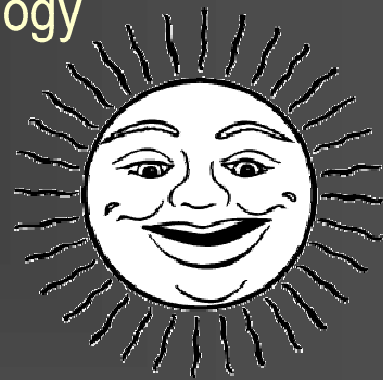
Economic Advantage

- Scientific agriculture
- Transportation system
- Lots of raw materials
- Huge markets
- Labor surplus
- Available capital (\$)



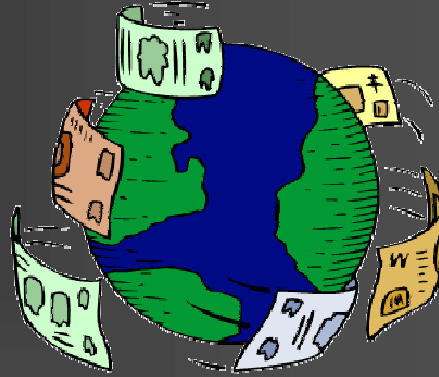
Special Advantages

- Mobile and growing urban population
- Social approval of profit motive
- Interest in science and technology
- Innovation was valued
- Calvinist work ethic



Geographic Advantage

- No place was more than 60 miles from the sea
- Secure island location



European Railroad Expansion, 1825-1870

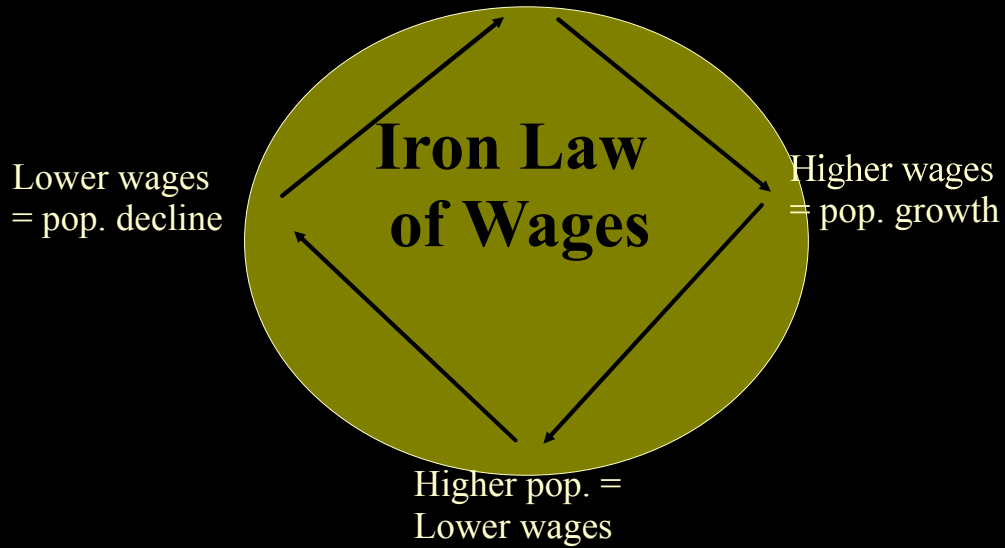
Data are kilometers of railroad track in use.

Country	1825	1830	1835	1840	1845	1850	1860	1870
Austria						1,357	2,927	6,112
Belgium						854	1,729	2,897
Britain	43	157	544	2,411	4,081	10,662	14,603	19,987
France		31	141	410	875	2,915	9,167	16,465
Germany/ Zollverein			6	469	2,143	5,856	11,089	17,211
Italy				20	152	620	2,404	6,429
Russia				27	144	501	1,626	10,731
Spain						28	1,640	5,295
Switzerland						25		
Total Continent		31	167	1,421	4,772	12,362	30,591	65,140
Total Europe	43	188	711	3,832	8,853	23,024	45,194	85,127
Percent in United Kingdom	100	84	77	63	46	46	48	31

Source: Compiled from data in B.R. Mitchell, *European
Historical Statistics, 1750-1970* (London: Macmillan, 1975), pp. 581-584

David Ricardo

Low population = Higher wages



Thomas Malthus

- The dismal science of economics
- Population growth will exceed the food supply
- Famine, war, disaster needed to keep population in check



Homework

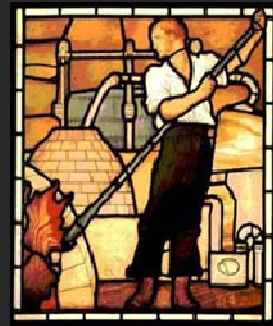
Chapter 20-2

The Industrial Revolution - Day 3

Entrance task: Think - why did the industrial revolution spread at different rates on the continent?

Today: The Industrial Revolution spreads

Homework: Ch. 20-3



The Industrial Rev days 1-4




 The Industrial Revolution on the Continent. The major developments took place in Germany and in the coastal areas along the English Channel where there were better natural resources or pools of labor.



Chart interpretation

In groups, examine the charts relating to the industrial revolution.

List 3 conclusions that may accurately be drawn from this information

Is there any info that seems contradictory?

Table 1
Percentage Distribution of the World's Manufacturing Production,
1870 and 1913



(percentage of world total)

	1870	1913
USA	23.3	35.8
Germany	13.2	15.7
U.K.	31.8	14.0
France	10.3	6.4
Russia	3.7	5.5
Italy	2.4	2.7
Canada	1.0	2.3
Belgium	2.9	2.1
Sweden	0.4	1.0
Japan		1.2
India	11.0	1.1
Other Countries		12.2

<http://legacy.fordham.edu/Halsall/mod/indrevtabs1.asp>

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Table 2
The Rate of Industrial Growth in Five Selected Countries
Indices of Industrial Production

(Base Figures 1905-13 = 100)

	UK	France	Germany	Russia	Italy
1781-90	3.8	10.9	-	-	-
1801-14	7.1	12.3	-	-	-
1825-34	18.8	21.5	-	-	-
1845-54	27.5	33.7	11.7	-	-
1865-74	49.2	49.8	24.2	13.5	42.9
1885-94	70.5	68.2	45.3	38.7	54.6
1905-13	100.0	100.0	100.0	100.0	100.0
% of world industrial production in 1913	14.0	6.4	17.7	5.5	2.7

<http://legacy.fordham.edu/Halsall/mod/indrevtabs1.asp>

1 2 3 4 5 6 7 8

Table 3
Output of Coal and Lignite* - Selected Countries, Annual Averages

* very soft coal - poor quality in million metric tons

	UK	France	Germany	Austria	Belgium	Russia
1820-4	17.7	1.1	1.2	0.1	-	-
1840-4	34.2	3.5	4.4	0.52	4.1	-
1860-4	86.3	10.0	20.8	4.1	10.2	0.04
1880-4	158.9	20.2	65.7	17.0	17.5	3.7
1900-4	230.4	33.0	157.3	38.8	23.3	17.3

Table 4
Output of Pig Iron - Selected Countries, Annual Averages

(in thousand metric tons)

	UK	France	Germany	Austria	Belgium	Russia
1781-90	69	141	-	-	-	-
1825-29	669	212	90	85	-	164
1855-59	3,583	900	422	306	312	254
1875-79	6,484	1,462	1,770	418	484	424
1900-14	8,778	2,665	7,925	1,425	1,070	2,773

1 2 3 4 5 6 7 8

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Table 5
Growth of the Cotton Industry in Selected Countries

(Cotton Spindles - Selected Countries, Annual Total Figures [in 1000's])

	UK	France	Germany	Austria	Belgium	Russia
1834	10,000	2,500	626(' 36)	800	200	700 (1840)
1877	39,500	5,000	4,700	1,558	800	2,500
1913	55,700	7,400	11,186	4,909	1,492	9,212

Table 6

[See this data presented in a variety of ways - [Table 6 Extra](#)]

Spread of Railways in Ten Selected Countries

(Length of line open [in kilometers [1km = 5/8 mile]])



	1840	1860	1880	1900
Austria-Hungary	144	4,543	18,507	36,330
Belgium	334	1,730	4,112	4,591
France	496	9,167	23,089	38,109
Germany	469	11,089	33,838	51,678
Great Britain	2,390	14,603	25,060	30,079
Italy	20	2,404	9,290	16,429
Netherlands	17	335	1,846	2,776
Russia	27	1,626	22,865	53,234
Spain	-	1,917	7,490	13,214
Sweden	-	527	5,876	11,303

1 2 3 4 5 6 7 8

Table 7
Illiteracy in Europe, c. 1850

(Approximate Percentage of Adult Illiterates is Indicated Where Known)

Countries with less than 30% illiterate	Countries with 30 to 50% illiterate	Countries with over 50% illiterate
Denmark	Austria 40-45%	Bulgaria
Germany	Belgium 45-50%	Greece
(Prussia 20%)	England 30-33%	Hungary
Netherlands	France 40-45%	Italy 75-80%
Scotland 20%		Portugal
Sweden 10%		Rumania
Switzerland		Russia 90-95%
		Serbia
		Spain 75%

1 2 3 4 5 6 7 8

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Table 8
Population

(tentative estimates in millions - much of it guesswork)

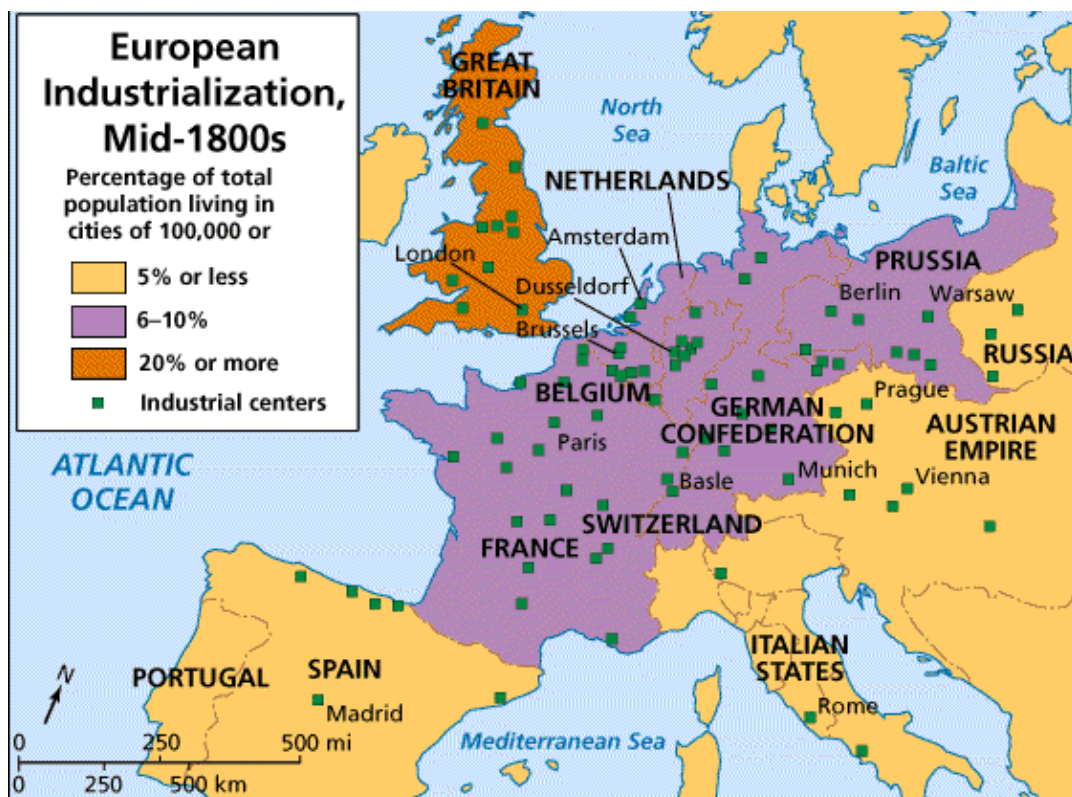
*	1750/1	1800/1	1850/1	1990
Great Britain	7.4	10.5	20.8	57.1
France	21	27.3	35.8	56.1
Germany 			34.0	79.0
-[Germ+ Aust]	18	23		
Austria 			17.5	7.6
Hungary	3.5	5.0	13.2	10.5
Belgium	2.2	3.1	4.3	9.9
Italy	16.0	19.0	24.4	57.6
Netherlands	1.6	2.1	3.1	14.9
Portugal	2.3	2.9	3.5	10.5
Russia	28	40.0	68.5	146.4
Spain	8.2	10.5	15.0	39.6
Sweden	1.8	2.3	3.5	8.4
EUROPE (approx)	132.0	190.0	260.0	775.0

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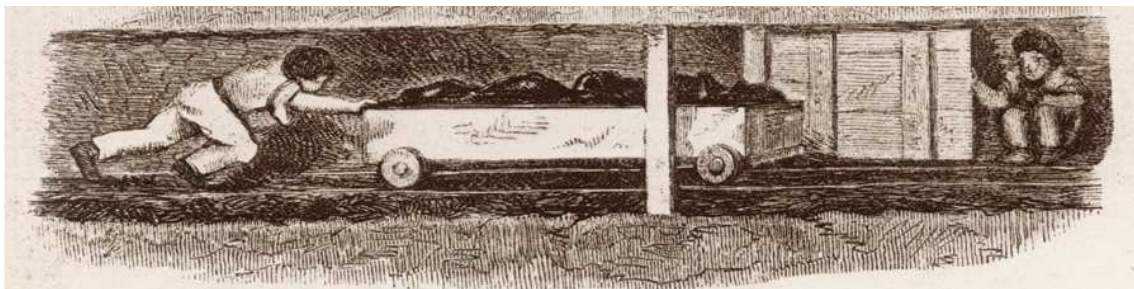
Homework: Ch. 20-3



Capital and Labor in the INDUSTRIAL REVOLUTION



The Industrial Rev days 1-4



CHILD-LABOUR IN COAL-MINES OF THE 'FORTIES: A LITTLE "TRAPPER" (ON RIGHT) OPENING AN AIR-DOOR FOR A TRUCK TO PASS THROUGH.

"The trappers sit with a string attached to the door, and pull it open the moment they hear the corves (coal-trucks) at hand, and the moment one has passed they let the door fall to. . . . They are in the pit the whole time it's worked, frequently above twelve hours a day. They sit, moreover, in the dark."

All the Illustrations on this page and the extracts accompanying them are reproduced from woodcuts and an article in "The Cyclopædia of Useful Arts" (1840-5).

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The Industrial Rev days 1-4

But now mark the effect of the system on women: it causes a total ignorance of all domestic duties; they know nothing that they ought to know; they are rendered unfit for the duties of women by overwork, and become utterly demoralized. In the male the moral effects of the system are very sad, but in the female they are infinitely worse, not alone upon themselves, but upon their families, upon society, and, I may add, upon the country itself. It is bad enough if you corrupt the man, but if you corrupt the woman, you poison the waters of life at the very fountain. Sir, it appears that they are wholly disqualified from even learning how to discharge the duties of wife and mother.

REPORT ON WORKING WOMEN

SOURCE: [HTTP://WWW.LEARNINGCURVE.GOV.UK](http://www.learningcurve.gov.uk)

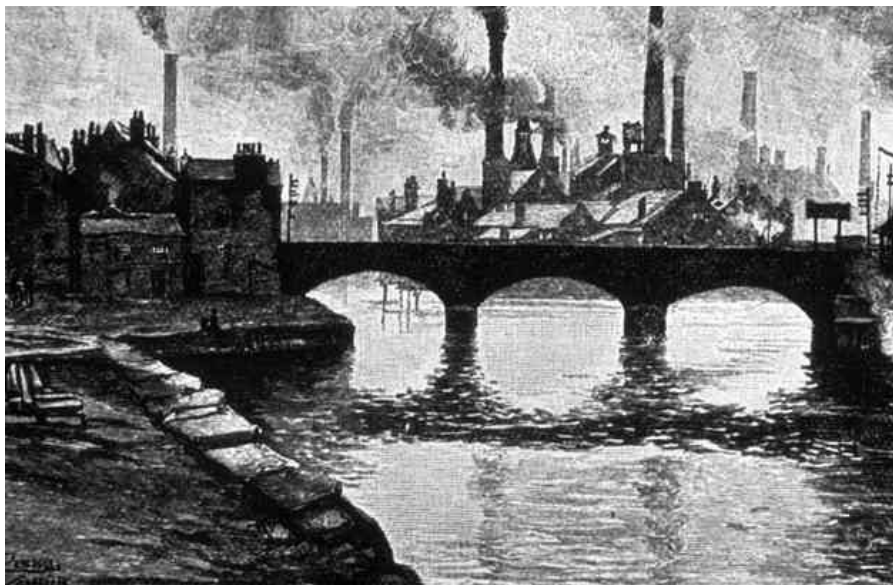


Combination Acts - 1799



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Living Conditions



The Industrial Rev days 1-4



A COURT FOR KING CHOLERA.

The Human Side of the Industrial Revolution

3 Groups - Owners, Workers, Economists

- * read evidence
- * discuss questions
- * present to class



Factory owners, factory workers, economists

What is the main thrust of the argument you would like to have presented in a history of the Industrial Revolution?

What evidence supports this position?

What questions could you ask the opposing views that would force them to admit the validity of your position?

Homework - Ch. 20-4

Industrial Revolution - Day 4

Entrance task: How do you think labor and industry has changed since the 19th & early 20th century and why?

Today: Political views of Industrial life

Homework - Review for quiz

Liberals

- ❑ opposed the notion that government should regulate business practices and believed in *laissez faire* - a hands-off policy by government toward business
- ❑ Liberal opinion was based on economist Adam Smith's views in The Wealth of Nations. Smith said that businesses could make a maximum profit when operating as they saw fit. This would lead to increased production and a greater amount of goods available to consumers. Non-interference, therefore, was good for both businessmen and the community.
- ❑ According to liberals, there were bound to be poor people in society even if government enacted reforms. There was no point, said liberals, in government regulation of business because more harm than good would result.
- ❑ Liberal-minded factory owners also agreed with opinions expressed by T.R. Malthus in his Essay on the Principle of Population. Malthus insisted that the working man should blame himself - not the factory owner - for his poor living conditions. Working class families made the mistake of having more children than they could support, and were responsible for their own poverty. Overpopulation, Malthus said, is also the cause of unemployment. Large families mean more job seekers than jobs available.

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Democratic Liberals

- Some liberals turned against a laissez-faire policy and urged government reforms to help long-suffering workers.
- Democratic liberals favored higher wages, a reduction in working hours, safer conditions in factories, the formation of labor unions, and the granting of voting rights to workers

Utopian Socialists

- A Frenchman named Charles Fourier wanted to create a *Utopia* - a perfect society. He hoped to organize a series of "phalanxes," small communities where no one would be rich and no one would be poor. The pressures and problems of an industrial society would be eliminated. People would do a variety of work to reduce boredom. The most undesirable jobs would be given to children since they would be less apt to complain. Tasty meals would be served, fine clothes worn, and entertainment provided. Emphasis would be put on the enjoyment of life.
- Another Utopian Socialist was Robert Owen. He believed that people brought up along lines of goodness and decency would turn out to be people of fine character. Owen purchased a mill near Glasgow, Scotland, where he employed workers under the best of conditions. In the mill town, he improved housing, established low-priced stores, and founded schools. In later years, Owen went to the United States and attempted to start a model community at New Harmony, Indiana. Both communities eventually failed.

Marxists

- Karl Marx was the leading socialist thinker of his time. He and Friedrich Engels wrote the Communist Manifesto, which today forms the basis of communist thinking.
- Marx saw history as a struggle between *capitalists* (owners of business and industry, also called the *bourgeoisie*) and the *proletariat* (wage earners). Marx said that capitalists have always controlled government and used it to their advantage. The working class - with no political power - has had a miserable existence.
- Eventually, warned Marx, the proletariat would rise up and overthrow the capitalists in a violent communist revolution. Socialism will become the new form of government. In this way, wealth and other benefits of industrialization can be more evenly divided among all the people. Unemployment, poverty, hunger and slave-like working conditions will be eliminated.

The Industrial Rev days 1-4

1. Match the names and terms in column one with the descriptions in column two.

- | | |
|--------------------------|---|
| 1. _____ Charles Fourier | a. urged communist revolutions |
| 2. _____ proletariat | b. wage earner |
| 3. _____ Robert Owen | c. criticized by Karl Marx |
| 4. _____ capitalists | d. democratic-liberals favored organizing them |
| 5. _____ laissez-faire | e. said overpopulation was the cause of workers' problems |
| 6. _____ Adam Smith | f. government ownership of business & industry |
| 7. _____ Socialism | g. his New Harmony community failed |
| 8. _____ Karl Marx | h. <u>The Wealth of Nations</u> |
| 9. _____ T.R. Malthus | i. a government policy of non-interference in business |
| 10. _____ Labor unions | j. wanted to establish a series of phalanxes |

Do the following opinions belong to liberals, democratic liberals, Utopian Socialists or Marxists?

1. _____ Throughout history, capitalists have taken advantage of the proletariat.
2. _____ Small communities properly organized can offer citizens ideal working and living conditions
3. _____ When the government does not interfere with business, the result is increased profits for businesses, the hiring of more workers, and the production of more goods for the consumer.
4. _____ Government must accept the fact that there are bound to be rich and poor people in society, and that nothing can be done about it without causing more harm than good.
5. _____ Workers can achieve their goals only through violent revolution in which the wealthy are ousted from power.
6. _____ Poverty and unemployment are the results of overpopulation brought on by factory workers themselves.
7. _____ Capitalism should be maintained, but reforms should be made to help workers.

**How do we know what life
was like for early industrial
workers?**

**The Sadler Report
1832**

The Industrial Rev days 1-4

"Factory labor is a species of work, in some respects singularly unfitted for children. Cooped up in a heated atmosphere, debarred the necessary exercise, remaining in one position for a series of hours, one set or system of muscles alone called into activity, it cannot be wondered at – that its effects are injurious to the physical growth of a child. Where the bony system is still imperfect, the vertical position it is compelled to retain, influences its direction; the spinal column bends beneath the weight of the head, bulges out laterally, or is dragged forward by the weight of the parts composing the chest, the pelvis yields beneath the opposing pressure downwards, and the resistance given by the thigh-bones; its capacity is lessened, sometimes more and sometimes less; the legs curve, and the whole body loses height, in consequence of this general yielding and bending of its parts."

Excerpt from The Manufacturing Population of England (1833) by P. Gaskell, a medical observer

It is alleged that the children who labor in factories are often cruelly beaten by the spinners or over-lookers that their feeble limbs become distorted by continual standing and stooping, and they grow up cripples. That they are compelled to work thirteen, fourteen or fifteen hours per day. Views such as these have been repeatedly given of factory labor which have persuaded many to think they must be true. But this is the exception not the rule . . . If a spinner can now produce as much in a day as he could last century have produced in a year, and if goods which formerly required eight months to bleach, are now bleached in two days, surely these are the very causes of the amazing extension of the manufacture, and are therefore, subjects of rejoicing, not of lamentation

Excerpt from The History of the Cotton Manufacture (1835), by Edward Baines, a factory owner

Industrial Revolution - Day 4

Homework - Review for quiz

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